

CIS 4345-110, CRN 80684, Network and Systems Security

Online Course

Fall 2020

Texas A&M University-Central Texas

## **COURSE DATES, MODALITY, AND LOCATION**

This is a 100% online course. All course contents will be made available online using the TAMUCT Canvas Learning Management System: [<https://tamuct.instructure.com>]. All announcement regarding homework assignments, class tests, discussions, exams will be posted in Canvas. Students are required to access Canvas course page **at least twice a week** to get any update regarding this course. Online learning requires all the enrolled students to self-paced and prepare themselves to comply with assigned class assignments and exams. They can also install Canvas student app on their phone.

## **INSTRUCTOR AND CONTACT INFORMATION**

**Instructor:** Abhijit K Nag, Ph.D.

**Office:** FH 323I

**Phone:** (254) 519-5933(COBA office)

**Email:** Canvas Inbox. If Canvas is not available, email: [aknag@tamuct.edu](mailto:aknag@tamuct.edu)

### **Office Hours:**

Monday/Wednesday 2:30 pm –3:30 pm (virtually via course chat option or WebEx call). I am also available for students on an appointment basis. Send me an email ([aknag@tamuct.edu](mailto:aknag@tamuct.edu)) to schedule an appointment to meet.

### **Mode of instruction and course access:**

This is a blended course, which meets at least 8 weeks face to face, and the remaining weeks will be online. As of now, the first set of weeks will be Face-to-face until the midterm exam. The online course contents will be made available using the TAMUCT Canvas Learning Management System: [<https://tamuct.instructure.com>]. All announcement regarding homework assignments, class tests, midterm/final exams will be posted in Canvas. Students are expected to access Canvas course page regularly to get any update regarding this course. They can also install Canvas student app on their phone.

### **Student-instructor interaction:**

Students are encouraged to send all course-related correspondence to Canvas email message. Students can meet me at regular office hour (mentioned above) or by appointment to discuss any course related issues.

### **Warrior Shield:**

Emergency Warning System for Texas A&M University-Central Texas

Warrior Shield is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in Warrior Shield through their myCT email account.

Connect to Warrior Shield by [911Cellular](https://portal.publicsafetycloud.net/Account/Login) [https://portal.publicsafetycloud.net/Account/Login] to change where you receive your alerts or to opt out. By staying enrolled in Warrior Shield, university officials can quickly pass on safety-related information, regardless of your location.

### **COVID-19 SAFETY MEASURES**

To promote public safety and protect students, faculty, and staff during the coronavirus pandemic, Texas A&M University-Central Texas has adopted policies and practices to minimize virus transmission. All members of the university community are expected to adhere to these measures to ensure their own safety and the safety of others. Students **must observe** the following practices while participating in face-to-face courses, course-related activities (office hours, help sessions, transitioning to and between classes, study spaces, academic services, etc.) and co-curricular programs:

- Self-monitoring—Students **should follow CDC recommendations for self-monitoring**. Students who have a fever or exhibit symptoms of COVID-19 should participate in class remotely and should not participate in face-to-face instruction. Students required to quarantine must participate in courses and course-related activities remotely and must not attend face-to-face course activities. Students should notify their instructors of the quarantine requirement. Students under quarantine are expected to participate in courses and complete graded work unless they have symptoms that are too severe to participate in course activities.
- Face Coverings— **Face coverings must be worn inside of buildings and within 50 feet of building entrances on the A&M-Central Texas Campus**. This includes lobbies, restrooms, hallways, elevators, classrooms, laboratories, conference rooms, break rooms, non-private office spaces, and other shared spaces. Face coverings are also required in outdoor spaces where physical distancing is not maintained. The university will evaluate exceptions to this requirement on a case by case basis. Students can request an exception through the Office of Access and Inclusion in Student Affairs.
  - **If a student refuses to wear a face covering, the instructor should ask the student to leave and join the class remotely. If the student does not leave the class, the faculty member should report that student to the Office of Student Conduct. Additionally, the faculty member may choose to teach that day's class remotely for all students.**
- Physical Distancing—**Physical distancing must be maintained between students, instructors, and others in the course and course-related activities.**

- Classroom Ingress/Egress—Students **must follow marked pathways for entering and exiting classrooms and other teaching spaces**. Leave classrooms promptly after course activities have concluded. Do not congregate in hallways and maintain 6-foot physical distancing when waiting to enter classrooms and other instructional spaces.
- The university will notify students in the event that the COVID-19 situation necessitates changes to the course schedule or modality.

## **COURSE INFORMATION**

### **Course Overview and description:**

Studies the issues of Network and Systems Security as a continuous process involving analysis, implementation, evaluation and maintenance. Topics will include addressing computer-related risks, case analysis, and future trends. The course will provide approaches, techniques, and best practices for securing modern electronic data systems and networks. Areas covered include information and message security, database and file integrity, physical security, security management, security risk analysis, and encryption/cryptography. Will include practical laboratories in the analysis, and configuration of networking security protocols and tools.

Prerequisites: CIS 3347 or approval of Department Chair.

### **Course Objective:**

#### **Student Learning Outcomes:**

Students taking this course will be able to understand the common threats of computing resources, how to detect and prevent those threats in today's computing systems, what are the techniques hackers used to compromise security, how to encrypt message while sending over the communication network.

### **Competency Goals Statements (certification or standards): None**

#### **Required Reading and Textbook(s):**

**Computer Security Fundamentals** Edition: 4<sup>th</sup> Edition. Author: Chuck Easttom II.  
ISBN-13: **978-0135774779**.

**Note:** A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

**Supplemental Material:** The course textbook will be supplemented with other materials including handouts, oral presentations, software demonstration, PowerPoint presentations, etc.

## **COURSE REQUIREMENTS**

### **Course Requirements:**

Students are required to complete one midterm exam, one final exam, four class tests and five homework assignments/lab assignments. The topic of all exams and class tests will be declared in the class. Class attendance is required for this course and will count towards class participation points.

In this course, we will be using Virtual Box to launch **Windows 10 OS** on Windows/Linux machine. The graduate assistant will provide detail instruction how to download the Windows 10 ISO file from Microsoft Azure and your credentials to access the account.

Students are required to have a **portable hard drive (with USB 3.0 port) (at least 300 GB free space available)** to store the Windows 10 image. If you use your own laptop, you need to install **Virtual Box** software to create the virtual machines. You are required to bring the image for lab assignments during class meeting times or do the lab in online environment.

### *Class Tests*

There will be **four class tests** for this course. The class tests will be conducted online through Canvas course website under Quiz section. Each class test will be worth **60** points.

### *Exams*

There will be one midterm and one final exam. The midterm exam will contain 200 points, and the final exam will contain 200 points. The final exam will **NOT** be comprehensive for this course.

### *Assignments*

**Five** assignments (homework and lab assignments) will be given to the students. The due dates of these assignments will be posted in canvas portal. Each assignment will be worth **60** points.

### *Class Participation*

Attending the course lectures in mandatory for this course. There will be some discussion questions posted on Canvas, which count toward class participation marks. Total class participation is worth **60** points.

### **Grading Criteria Rubric and Conversion**

The distribution of points for various student activities and the grading scheme are mentioned below:

<b>Student Activity</b>	<b>Quantity</b>	<b>Points</b>	<b>Total</b>
<b>Class Tests</b>	4	60	240
<b>Assignments</b>	5	60	300
<b>Midterm Exam</b>	1	200	200
<b>Final Exam</b>	1	200	200
<b>Class Participation</b>		60	60
<b>Total</b>			1000

<b>Point Range</b>	<b>Letter Grade</b>
<b>1000-900</b>	A
<b>899-800</b>	B

799-700	C
699-600	D
599-0	F

### Posting of Grades

All students' grade will be posted on the Canvas Grade book, and students can monitor their progress in this course using Canvas Portal. Students can expect to see their grades within two weeks of the closing of class tests, exams, and assignments. Students are expected to visit Canvas course webpage regularly to get any update regarding this course.

### COURSE OUTLINE AND CALENDAR

#### Complete Course Calendar

The Tentative course outline is mentioned below. The announcement dates may change depending on the pace of the course, lab assignments and overall student learning. All assignments, class tests, midterm and final exam due dates will be announced in the class.

Week	Date	Topic	Due
<b>1</b>	8-24	Introduction to Course/ Syllabus	
	8-26	Introduction to Computer Security, Concepts, and Approaches	
<b>2</b>	8-31	Introduction to Computer Security, Concepts, and Approaches	Discussion 1
	9-02	Networks and The Internet	
<b>3</b>	9-07	<b>NO CLASS</b>	Assignment 1
	9-09	Networks and The Internet	Class Test 1
<b>4</b>	9-14	Cyber Stalking	
	9-16	Cyber Fraud and Abuse	
<b>5</b>	9-21	Denial of Service	
	9-23	Malware	Assignment 2
<b>6</b>	9-28		
	9-30	Ethical Hacking Techniques	Class Test 2
<b>7</b>	10-05	Encryption/ Decryption Techniques	Discussion 2
	10-07		
<b>8</b>	10-12	Hashing, Salting, Steganography,	
	10-14	Cryptanalysis	<b>Midterm</b>
<b>9</b>	10-19	Firewalls, Antispyware, IDS, WIFI	Assignment 3
	10-21	security	
<b>10</b>	10-26	Security Policies, Access Control, Disaster	
	10-28	Recovery	
<b>11</b>	11-02	Data Classification, Important Laws	Discussion 3
	11-04		Class Test 3
<b>12</b>	11-09	Various Authentication Approaches including MFA, 2FA and continuous authentication	Assignment 4

	11-11	<b>NO CLASS</b>	
<b>13</b>	11-16	Network Scanning and Vulnerability Scanning	
	11-18		
<b>14</b>	11-23		Assignment 5
	11-25	Operating System Security, Database and file security	Class Test 4
<b>15</b>	11-30		Discussion 4
	12-02		
<b>16</b>	12-07	Final Exam Overview	
	12-09	Final Exam	

## INSTRUCTOR POLICIES

### Policies related to grading

- All the assignments must be submitted before the posted deadline in Canvas Course Website unless arrangements are made beforehand (at least **48 hours before** the deadline and the students need to send an email explaining the situation and providing necessary documentation).
- Assignments and class tests posted before midterm exam **CANNOT** be completed/submitted after the midterm exam.
- Assignments more than **48** hours late are subject to **20%** late penalty.
- Requests for **Incomplete grades**:
  - Incompletes will only be given in emergency or other extreme circumstances. Any request for an incomplete grade in this course must be approved by the course professor prior to December 01, 2019. Where possible, requests should be submitted in written form with reasons and must include an address and/or telephone number where you may be contacted throughout the following semester.
  - For a request of an incomplete grade to be considered, at least **70%** of the total course work (**700 points**) have to be completed.
  - Finally, approval of an incomplete grade (**I**) is up to the **department chair** and **college Dean**, not only to the course instructor.

### Instructor's Personal Statement

- The instructor reserves the right to modify the course syllabus during the semester for the benefit of the students.
- The instructor reserves the right to supplement materials presented in the text with additional course material that may help the students to understand the topic better.
- The instructor reserves the right to modify grading policy rubrics. Any Change to grading rubrics will be applied to current and possible future assignments.
- The instructor will not accept any pending course assignments after December 09, 2020 in the Fall 2020 semester.

### Important University Dates:

Please visit the following link to access 2020-2021 academic calendar:

<https://www.tamuct.edu/registrar/docs/2020-2021-academic-calendar.pdf>

## TECHNOLOGY REQUIREMENTS AND SUPPORT

### Technology Requirements

This course will use the A&M-Central Texas Instructure Canvas learning management system.

**We strongly recommend the latest versions of Chrome or Firefox browsers. Canvas no longer supports any version of Internet Explorer.**

Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com>].

Username: Your MyCT username (xx123 or everything before the "@" in your MyCT e-mail address)

Password: Your MyCT password

### Canvas Support

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select "Chat with Canvas Support," submit a support request through "Report a Problem," or call the Canvas support line: 1-844-757-0953.

For issues related to course content and requirements, contact your instructor.

### Other Technology Support

For log-in problems, students should contact Help Desk Central.

24 hours a day, 7 days a week:

Email: [helpdesk@tamu.edu](mailto:helpdesk@tamu.edu)

Phone: (254) 519-5466

[Web Chat](http://hdc.tamu.edu): [<http://hdc.tamu.edu>]

*Please let the support technician know you are an A&M-Central Texas student.*

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## UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

### Drop Policy

If you discover that you need to drop this class, you must complete the [Drop Request](#) Dynamic Form through Warrior Web.

[<https://dynamicforms.ngwebsolutions.com/casAuthentication.ashx?InstID=eaed95b9-f2be-45f3-a37d-46928168bc10&targetUrl=https%3A%2F%2Fdynamicforms.ngwebsolutions.com%2Fsubmit%2FForm%2Fstart%2F53b8369e-0502-4f36-be43-f02a4202f612>].

Faculty cannot drop students; this is always the responsibility of the student. The Registrar's Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Registrar's Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar's Office immediately. You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

### Academic Integrity

Texas A&M University -Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty,

and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Academic integrity is defined as a commitment to honesty, trust, fairness, respect, and responsibility. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. Academic misconduct is any act that improperly affects a true and honest evaluation of a student's academic performance and includes, but is not limited to, working with others in an unauthorized manner, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student's work, collusion, and the abuse of resource materials. All academic misconduct concerns will be referred to the university's Office of Student Conduct. Ignorance of the university's standards and expectations is never an excuse to act with a lack of integrity. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more [information regarding the Student Conduct process](https://www.tamuct.edu/student-affairs/student-conduct.html), [https://www.tamuct.edu/student-affairs/student-conduct.html].

If you know of potential honor violations by other students, you may [submit a report](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0), [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout\_id=0].

### **Academic Accommodations**

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Office of Access and Inclusion is responsible for ensuring that students with a disability receive equal access to the university's programs, services and activities. If you believe you have a disability requiring reasonable accommodations please contact the Office of Access and Inclusion, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such.

For more information please visit our [Access & Inclusion](https://tamuct.instructure.com/courses/717) Canvas page (log-in required) [https://tamuct.instructure.com/courses/717]

### **Important information for Pregnant and/or Parenting Students**

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit [Student Affairs](https://www.tamuct.edu/student-affairs/index.html) [https://www.tamuct.edu/student-affairs/index.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf) online, please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and



parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

### **Tutoring**

Tutoring is available to all A&M-Central Texas students, on a remote online basis. Visit the Academic Support Community in Canvas to view schedules and contact information. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors will return at the Tutoring Center in Warrior Hall, Suite 111 in the Fall 2020. Student success coaching is available online upon request.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, success coaching, or have any other question, contact Academic Support Programs at (254) 501-5836, visit the Office of Student Success at 212F Warrior Hall, or by emailing [studentsuccess@tamuct.edu](mailto:studentsuccess@tamuct.edu).

Chat live with a tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive online tutoring support at no additional cost. This tool provides tutoring in over 40 subject areas except writing support. Access Tutor.com through Canvas.

### **University Writing Center**

The University Writing Center (UWC) at Texas A&M University–Central Texas (TAMUCT) is a free service open to all TAMUCT students. For the Fall 2020 semester, all services will be online as a result of the COVID-19 pandemic. The hours of operation are from 10:00 a.m.-5:00 p.m.

Monday thru Thursday with satellite hours online Monday thru Thursday from 6:00-9:00 p.m. The UWC is also offering hours from 12:00-3:00 p.m. on Saturdays.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. By providing a practice audience for students' ideas and writing, our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

Students may arrange a one-to-one session with a trained and experienced writing tutor by making an appointment via [WCOOnline](https://tamuct.mywconline.com/) [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at [bruce.bowles@tamuct.edu](mailto:bruce.bowles@tamuct.edu) if you have any questions about the UWC and/or need any assistance with scheduling.

### **University Library**

The University Library provides many services in support of research across campus and at a

distance. We offer over 200 electronic databases containing approximately 250,000 eBooks and 82,000 journals, in addition to the 85,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place on Skype or in-person at the library. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our [Library website](http://tamuct.libguides.com/index) [http://tamuct.libguides.com/index].

**For Fall 2020, all reference service will be conducted virtually. Please go to our [Library website](http://tamuct.libguides.com/index) [http://tamuct.libguides.com/index] to access our virtual reference help and our current hours.**

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## OPTIONAL POLICY STATEMENTS

### **A Note about Sexual Violence at A&M-Central Texas**

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/compliance/titleix.html) [https://www.tamuct.edu/compliance/titleix.html].

### **Behavioral Intervention**

Texas A&M University-Central Texas cares about the safety, health, and well-being of its students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, please make a referral to the Behavioral Intervention Team. Referring your concern shows you care. You can complete the [referral](#) online [[https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout\\_id=2](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2)].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](#) website for more information [<https://www.tamuct.edu/student-affairs/bat.html>]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5800.

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